

Amendments to the Drawings:

The attached sheets of drawings include changes to Figures 3, 4 and 7. These sheets, which include Figures 3, 4, 7 and 8, replace the original sheets including the same Figures.

In Figures 3 and 4, previously omitted reference numbers 50 and 51 have been added.

In Figure 7, reference number 98 has been corrected to 78.

Attachment: Replacement Sheets

REMARKS/ARGUMENTS

In response to the outstanding office action, the drawings and specification have been amended to overcome the drawing rejections. In addition, certain claims have been amended to improve antecedents, and new dependent claims 27 through 32 have been added to claim greater detail regarding the construction of the bypass valve.

In the outstanding office action, the examiner rejected claims 8, 10-15, 17, 19 and 22-25 on Cox in view of Faria. In the rejection the examiner acknowledged that Cox does not disclose the shape of the second openings. However the examiner stated that "Faria discloses a reuseable oil filter comprising annular arc segment openings (Fig. 1, #48) distributed around a first opening (#50)." This is not correct. The inlet ports in Faria are simply "holes" (col. 56, line 5), not arc segments, and do not collectively occupy most of the annular area as required by the independent claims of the present application.

Faria shows a large number of relatively small holes, and in that regard, is as restrictive to oil flow as the prior art. In particular, a large number of small holes has at least two disadvantages for spin-on oil filters. First, for their combined area, they present a large surface area, causing flow restrictions and pressure drops due to the viscosity of the oil. Second, in a typical spin-on oil filter mount, normally oil is delivered to the area in question through a single, radially offset hole in the face of the mount (Figure 5 of the present application is not accurate in this regard). Also the face of the mount and the face of the spin-on filter have a limited separation. Consequently substantial circumferential flow in this restricted space is required to obtain substantial flow through a number of these openings. This too causes a substantial flow restriction and viscous pressure drops. These factors are of course undesirable in any event, and particularly undesirable on engine startup, as these effects are the greatest when the viscosity of the cold oil is the greatest, extending the time before meaningful oil pressure can be obtained.

In the present invention, the annular arc segment openings distributed around the first openings and collectively occupying most of a full annular area do two things. First, while one does not know what the angular orientation of the spin-on filter will be relative to the oil feed hole on the filter mount when the filter is properly mounted, the arc segment openings assure that one of the large openings will be positioned to directly or substantially receive the oil from the oil feed hole in the filter mount, no matter what the angular orientation of the filter may be with respect to the mount.

To illustrate the importance of these arc segment openings, the undersigned has enclosed a report from Southwest Research Institute (Exhibit A) reporting on flow rate tests on a filter in accordance with the present invention. Note that the flow rate was 20 gal per minute. This is to be compared to standard spin-on cartridge filters, such as the WIX filters, the data for which was downloaded from the Internet (attached as Exhibit B). Note that the flow rate for a comparable filter in accordance with the present invention is approximately twice that of the WIX filters, which in turn are representative of other manufacturer's filters.

As further evidence of the uniqueness, nonobviousness and high performance, the undersigned has enclosed materials (Exhibit C) showing filters in accordance with the present

invention winning a Sema International New Products Award, among other awards. Clearly such recognition does not come to old products or those that are obvious variations of old products.

With respect to the new claims, these claims provide more specificity with respect to the arrangement of the bypass valve not found in the prior art. Also with respect to the remaining claims, it is believed that these claims are allowable as providing greater specificity and novelty to the overall claimed combination. Accordingly reconsideration of the rejection of the claims, particularly as now amended, is hereby requested.

CONCLUSION

Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Respectfully submitted,

BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN LLP

Dated: 03/14/2006

By


Roger W. Blakely, Jr.

Reg. No. 25,831

Tel.: (714) 557-3800 (Pacific Coast)

Attachments

12400 Wilshire Boulevard, Seventh Floor
Los Angeles, California 90025

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Jessica A. Clark
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